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ABSTRACT

This study was designed to investigate the effect of contract grading on the following variables: student performance on a cognitive posttest, final grade received in the course, student attitude toward the course, the amount of assigned reading completed by the students, the amount of time students devoted to the course, and the degree to which students perceived their individual needs to be met by the course. Six hypotheses were formulated and investigated. Subjects were students in two sections of a college course and the sample was replicated using the same course the following terms. Contract grading was randomly assigned to one section and conventional grading was assigned to the other section. The same instructor taught both groups. Contract grading affected student performance no differently than did conventional grading. A recommendation is made that a subsequent experiment be conducted employing a design allowing all that was done in this study while specifying a more accurate definition of conventional grading. The appendix contains the grade contract used in the study. (BC)

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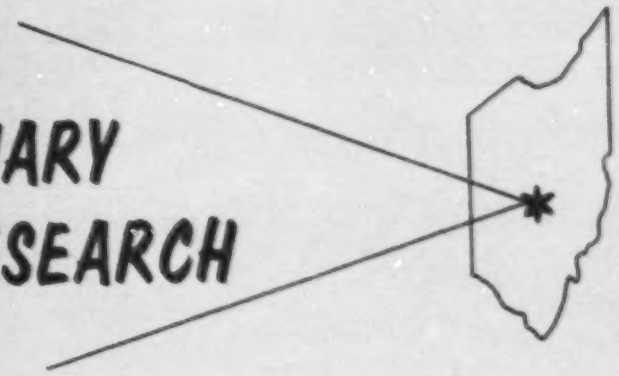

SUMMARY OF RESEARCH

DEPARTMENT OF AGRICULTURAL EDUCATION

The Ohio State University
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TM 003 820

THE EFFECT OF CONTRACT GRADING ON STUDENT PERFORMANCE

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INTRODUCTION

Teachers complain about the problem of assigning grades to students. Marx and Tombaugh (1967, p. 201) said "there is a persistent concern with the problem of examinations and grades, considered both as incentives and as measures of achievement." Educators are faced with the problem of using grades to motivate students and with the concomitant problem of reducing the negative effects of grades such as anxiety, threat, and the lack of individualization. If the motivational aspect of grades is to be retained but the negative effects of grades are to be reduced, a new method of assigning grades is necessary.

Many teachers as well as students are unhappy with current methods of grading. Yet, there are few teachers willing to do away with grades even if grades were not required. The most frequently used argument for retaining grades is that grades give students an incentive to perform and that without grades there will be no such incentive. Ebel (1965, p. 399) says, "Most teachers feel marks are necessary. The claim that the abolition of marks would lead to better achievement is impossible to demonstrate." Regardless of how a teacher arrives at a student's marks, these marks should be based on evidence of the student's performance. Ebel (1965, pp. 396-441) suggests that teachers need to work to make marks have more meaning.

THE EFFECT OF CONTRACT GRADING ON STUDENT PERFORMANCE

Since educators will seemingly continue to assign grades, there is a need to help teachers assign a meaningful final grade and simultaneously avoid the aspects of the grading system they dislike.

> "The teacher fires his arsenal of surprise quizzes, notebook checks, true-and-falses, multiple choices, and essay questions. On their side of the barbed wire, students resort to crib sheets, ponies, plagiarism, apple polishing, conning, and out-and-out cheating." (Simon, 1969, p. 24).

Some writers have proposed a method of assigning grades, referred to as contract grading, that eliminates some of the problems of the conventional method of assigning grades (Frymier, 1965; Combs; Glasgow, 1967). However, research reviewed does not indicate extensive study to substantiate these claims.

While current grading practices provide for a grade as a motivator, these same practices also cause anxiety, create suspicion, and often drive students to cheating. It is not uncommon for students to study rigorously in hopes of getting an "A" only to find that no matter how well the class performs, only a predetermined percentage of the class can achieve an "A". Consider the effect grades have on students when they score so low on the first test that there is no hope (no incentive) for them to achieve excellence in the course. In essence the motivational effect of the final grade is greatly reduced once the student realizes it will be impossible to reach his goal.

In the situation where a class is given a number of midterms and a final examination in order to arrive at the students' grades there is great opportunity for a student's grade to be based on a very narrow sampling of his performance capability. "But sampling behaviors by testing in education is like standing by a river with a cup, dipping into the stream as it moves by. In assessing learning, like dipping the cup into the river, one seldom gets an adequate sample." (Frymier, 1965, p. 235).

The contract method of grading retains the use of a final grade but allows the teacher to assign the grade in a manner which removes the threat of grades since any tests given are only evaluated in terms of being satisfactory or in need of improvement. The student is given full opportunity to continue to improve his performance until it is judged to be satisfactory. The student selects the grade to which he aspires and the student and teacher cooperatively decide what the student will do to receive the grade he has chosen. The student is informed that all work must be of high quality and will be returned for improvement if it is judged to be mediocre.

Thompson and Poppen (1972, p. 118) argue that contract grading allows the teacher to incorporate a number of learning principles into grade contracts. They suggest that the following principles are manifested through contract grading:

1. The learner has both choice and voice in selecting alternatives for meeting learning objectives. (The learner is more apt to become totally involved in a project which he has helped select and plan.)

2. The learner is given opportunities to exercise responsibility through making commitments to complete personal learning goals.

3. Personal involvement in learning is stressed through individualized and independent learning activities.

4. The teacher refrains from giving excessive directions. (Too much direction from the teacher usually results in apathetic conformity, defiance, scapegoating, or withdrawal.)

5. The differential learning styles of students are considered in providing alternatives to learning.

6. Competition with self is stressed over competition with others, and cooperation with others becomes an acceptable peer learning activity.

7. The learner feels a sense of freedom from the threat of failure.

8. The learning task falls within the learner's range of challenge -- that area where the task is neither too easy nor too difficult and the probability for success is good, but not certain.

9. There are opportunities for novel and stimulating learning experiences.

10. At least some of the purposes, objectives, and expectations of the course are defined in behavioral terms which clarify the learning task.

11. Progress in learning depends to a considerable extent on how the learner perceives (through reinforcement or encouragement) the appropriateness of his efforts to accomplish the learning objectives; rewarded behaviors are naturally more likely to be repeated.

12. The learner receives feedback on the appropriateness of his efforts through the facility he has gained in self-evaluation.

13. Learning is generalized to other life situations. (Generalization is most likely to occur when the learner has achieved the intrinsic reward of feeling a sense of self-satisfaction in achieving his objectives.) (Thompson and Poppen, 1972, pp. 118-119).

With contract grading: "Either the learning occurs or it does not. If it does, the grade is granted. If it does not, all parties involved understand exactly how and why the conditions were not fulfilled." (Frymier, 1965, p. 256). According to Frymier (1965, pp. 263-264):

> Allowing students to decide which grade they wish to strive for, which activities they will engage in, and how they will demonstrate that they have satisfactorily completed their studies permits a teacher to seize upon powerful motivating forces within individual students. No one has to try for an "A." Likewise, anyone can try. This notion shifts responsibility for learning from the teacher to the student, but at the same time offers an incentive by insuring success under known conditions. Students are challenged without being threatened. Students are almost never dissatisfied with grades, whatever they may be.

Most research conducted using contract grading has tended to look only at the effect of contract grading on the final grade received by the students. Therefore, the researchers felt it is imperative to examine not only student performance as indicated by a final grade but also to investigate the effect of contract grading on a number of other variables related to academic achievement. It seemed only logical that final grades would be higher when contract grading was used since students could revise work until it was satisfactory. The researchers felt that contract grading could be more adequately examined if its effects on additional variables were measured.

STATEMENT OF THE PROBLEM

This study was designed to investigate the effect of contract grading on the following variables:

1. The performance of students on a cognitive posttest.
2. The final grade received by students in the course.
3. The attitude of the students toward the course.
4. The amount of assigned reading completed by the students.
5. The amount of time students devoted to the course.
6. The degree to which students perceived their individual needs to be met by the course.

OBJECTIVES OF THE STUDY

The objectives of this study were to investigate the effect of contract grading on the aforementioned variables. The following hypotheses were investigated.

Hypothesis 1. Students contracting for grades will score significantly higher on a posttest than conventionally graded students.

Hypothesis 2. Students contracting for grades will receive higher grades in the course than conventionally graded students.

Hypothesis 3. Students contracting for grades will have significantly more favorable attitudes toward the course than conventionally graded students.

Hypothesis 4. Students contracting for grades will spend significantly more time outside of class on class-related work than conventionally graded students.

Hypothesis 5. Students contracting for grades will read significantly more of the assigned readings than conventionally graded students.

Hypothesis 6. Students contracting for grades will perceive the course to meet their individual needs to a greater extent than conventionally graded students.

METHODOLOGY

The study was conducted using students in two sections of Introduction to Agricultural Education Autumn Quarter, 1972 and was replicated with the same course Winter Quarter, 1973. Intact groups were used each quarter since it was not possible to randomly assign students to the two classes.

Contract grading was randomly assigned to one section and conventional grading was randomly assigned to the other section each quarter. Both sections were taught by the same instructor, who was also the experimenter. The instructor taught the course the preceding three quarters.

Since the instructor/experimenter might have intentionally or unintentionally favored the experimental section, his teaching of both sections was monitored during both quarters. Independent raters used the Observation System for Instructional Analysis to determine if the teaching/learning interactions differed in either section. The results of this monitoring clearly demonstrated that each section was taught in an almost identical fashion.

No attempt was made to recruit students into either section; hence differential recruitment should pose no threat to internal validity.

Both groups of students were assessed at the beginning of each quarter with a cognitive pretest to determine if either group entered the course with more knowledge pertinent to the content of the course than the other group. The results revealed that each group performed essentially the same on the pretest both quarters. Additionally, both groups' cumulative grade point averages were compared for both quarters and there were no significant differences between the mean grade point averages for either group either quarter.

The design for this study was the non-equivalent control group design. The two levels of the independent variable (contract grading versus conventional grading) were randomly assigned to the two sections of the course each quarter. Conventional grading for this study was defined as a system of assigning final grades for the course based on quizzes, midterms, papers, and final examinations.

Contract grading, as used in this class, was quite similar to the grade contract proposed by Frymier (1965, pp. 252-264). The grade contract for this study:

1. Is a written agreement negotiated between the instructor and each student that specifies some experiences required by all students as well as some experiences unique to individual students.

2. Includes dates when products are due, when tests are to be given, etc.

3. Requires specific interaction between the instructor and each student in order for the student to propose products and for the instructor to react to such proposals.

4. Provides for all work to be graded as satisfactory or unsatisfactory. All unsatisfactory work is returned to be resubmitted by the student until it is satisfactory.

See the Appendix for a copy of the contract used in the study.

RESULTS

The results of the study indicated that students contracting for grades received scores on the posttest administered at the end of both quarters that were not significantly different from the scores received by students who were conventionally graded.

During the Autumn Quarter study, students contracting for grades received final grades in the course which were not significantly different from students conventionally graded. However, during the Winter Quarter study, the contract-graded students received final grades in the course which were significantly higher (p. .01) than the grades received by students who were conventionally graded.

In both quarters the contract-graded students and conventionally-graded students received essentially the same scores on the instrument which measured their attitude toward the course, the instructor, the examinations given and the methods of teaching used. In both quarters there were no significant differences found in the amount of time spent by either group of students on the course outside of class. Both groups spent essentially the same amount of time outside of class preparing for the course regardless of whether they were conventionally graded or contract graded. Contract-graded students and conventionally-graded students did essentially the same amount of reading during both quarters of the experiment, and the fact that students were on contract grading did not increase the amount of reading completed for the course as had been hypothesized. There was no statistically significant difference between the two groups either quarter with respect to their perception to the extent to which the course met individual needs.

CONCLUSIONS

Contract grading affected student performance no differently than did the conventional method of grading. This conclusion leads to the possibility that the study was over-designed to the extent that it can be argued that both groups received almost the same treatment and therefore no differences could have been expected.

Both groups of students were exposed to precisely the same instructional treatment except that the conventionally-graded group had final grades determined by averaging the grades received on quizzes, papers, and a final examination while students in the contract-graded group selected the final grade desired and performed until the grade was earned. At first blush it

appeared that the grading treatments were different. However upon closely analyzing the findings, the design, and the very notion of contract grading, the investigators conclude there is reason to suggest that the design of the study did not allow the effect of the subtleties of contract grading to be demonstrated because the same subtleties had also become a part of the control (conventionally-graded) level of the treatment.

In essence, perhaps the study failed to use conventional grading. If the conventional grading used had consisted of having the students follow the same course outline and receive a midterm and a final examination from which their grades could have been derived, then the findings of the study might have indeed been different. By building into the conventionally-graded level of the treatment the possibility for students to choose supplemental projects, individualized experiences, and having papers to supplement test scores, the researchers may have in fact included some of the notions quite pertinent to contract grading, thereby masking some possible effects of contract grading.

RECOMMENDATION

It is recommended that a subsequent experiment on contract grading be conducted employing as many components as possible of the following design. This design will allow all that was done in this study while specifying a more accurate definition of conventional grading. It will also permit an investigation of the effects of additional independent variables and their resulting interactions.

A three-factor, fixed model, completely randomized design is proposed where:

A designates the teacher's philosophy of grading.

A1 = Papers are graded and returned with no feedback. Students are not encouraged to discuss marks with the teacher. Raw scores are used with no scaling or curving.

A2 = The teacher is open for grades to be discussed. Comments are written on the returned papers. Grades are adjusted as required when the class performs below level.

B designates the type of exams given.

B_1 = Exams are problem solving in nature and are based on critical and analytical thinking.

B_2 = Exams are objective in nature and draw heavily on recall.

C designates type of grading used.

C_1 = Conventional grading. There is a midterm and a final exam.

C_2 = Contract grading. A contract similar to the one used in the reported study is used.

The design is schematically presented below:

		C_1	C_2
A_1	B_1	S_s S_s S_s ...	S_s S_s S_s ...
		S_s S_s S_s ...	S_s S_s S_s ...
	B_2	S_s S_s S_s ...	S_s S_s S_s ...
		S_s S_s S_s ...	S_s S_s S_s ...
A_2	B_1	S_s S_s S_s ...	S_s S_s S_s ...
		S_s S_s S_s ...	S_s S_s S_s ...
		S_s S_s S_s ...	S_s S_s S_s ...
	B_2	S_s S_s S_s ...	S_s S_s S_s ...
		S_s S_s S_s ...	S_s S_s S_s ...

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APPENDIX

AGRICULTURAL EDUCATION 200

Introduction to Agricultural Education

Grade Contract

In order to receive a D, I agree to:

1. Plan and present two micro teaching units. Plans for these units must be submitted for approval by _____ and _____.

2. Get at least an 80 on all of the written exams (3 quizzes and a final). If I do not receive at least an 80 on the first try, I will be given additional opportunities to satisfactorily meet this requirement.

3. Attend class unless an excuse is authorized by the instructor!!

In order to receive a C, I agree to:

1. Complete all of the requirements for a D.

2. Complete the equivalent of two (2) half days of observation in selected schools. This experience must be completed by _____.

3. Submit a paper entitled: "What Kind of Teacher Will I Be?" (Attach a diary of your experiences to the back of this paper.)

In order to receive a B, I agree to:

1. Complete all the requirements for a C and D.

2. Prepare a paper, 7-10 pages (or other piece of evidence approved by the instructor) which demonstrates an intensive examination of any of the following general topics:

_____ Vocational Education
_____ How to maintain classroom discipline
_____ Vocational agriculture programs (or parts of programs) you wish to study in detail
_____ Cooperative Extension Service
_____ How to motivate students for learning
_____ How to improve the clarity of instruction
_____ Occupational Experience Programs

_____ Adult Education in the Vo-Ag Program
_____ FFA - Past, Present, and Future
_____ What competencies should a teacher have?
_____ Any other topic, approved by the instructor, will be acceptable.

NOTE: A proposed outline must be submitted for approval by _____
Mediocre work will be returned to be strengthened and resubmitted.

In order to receive an A, I agree to:

1. Complete all the requirements for a B, C, and D.

2. Identify and complete a participating experience which is related to the course. A paper (2-3 pages) will be submitted by _____, discussing the implications this experience has for me as a future teacher.

NOTE: This experience must be approved* before it is undertaken.

*You need to submit a short written proposal for this experience by _____.

I intend to meet the requirements for a/an _____.

Student _____

Instructor _____

SUMMARY OF RESEARCH SERIES

Considerable dissatisfaction has been expressed with traditional methods of assigning grades to students. Alternative systems are being sought and explored. In this study the authors specifically treat contract grading as an alternative to conventional methods. Information in current literature is summarized, a quasi-experimental study is reported, and a specific recommendation for further research is outlined.

This summary is based on a doctoral dissertation completed by Lawrence H. Newcomb under the direction of J. Robert Warmbrod. The authors, who are currently serving as Assistant Professor and Professor respectively in the Department of Agricultural Education at The Ohio State University, are recognized for their scholarship in preparing this summary. Special appreciation is also due Arthur W. Combs, Professor of Education, University of Florida, Gainesville and Jack R. Frymier, Professor, College of Education, The Ohio State University for their critical review of this manuscript prior to it's publication.

Research has been an important function of the Department of Agricultural Education since it was established in 1917. Research conducted by the Department has generally been in the form of graduate theses, staff studies and funded research. It is the purpose of this series to make useful knowledge from such research available to practitioners in the profession. Individuals desiring additional information on this topic should examine the references cited in the bibliography.

J. David McCracken,
Series Coordinator

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